MIXING/BLENDING/SHEARING DEVICES FOR PREPARATION OF DRILLING FLUIDS

Most drilling fluid formulations contain a base liquid and additives which must be dissolved or mechanically dispersed into the liquid to form a homogenous fluid. The resulting fluid may contain one or more of the following: water-dispersible (soluble) polymers or resins, clays or other insoluble but dispersible fine solids, and soluble salts. The fluids are mixed or sheared for times appropriate to achieve a homogenous mixture and are then set aside to "*age*." Drilling fluid aging is the process in which a drilling fluid sample, previously subjected to a period of shear, is allowed to more fully develop its rheological and filtration properties. Aging is done under conditions which vary from static to dynamic and from ambient to highly elevated temperatures.

The Five-Spindle **Multi-Mixer® Model 9B** mixer is recommended for use in general purpose mixing of drilling fluids in preparation for laboratory tests of mud materials. Five Spindle Multi-Mixer mixers are supplied with a single corrugated impeller blade on each spindle. ***No. 9B29X*** impellers are approximately 25 mm in diameter to conform to **American Petroleum Institute (API) Specification 13A** for mixing water-based and oil-based drilling fluids. These mixers can also be used to mix cement for field or laboratory testing.

Cups for Multi-Mixer mixers are sold separately.

Mixer Cups No. 205967 are 180 mm deep, 97 mm at top and 70 mm at bottom.

Five-Spindle Multi-Mixer Mixer

Ordering Information

Part No.	Description	Volts/Hz	RPM	Volts/Hz
205976	Multi-Mixer Model 9B with 9B29X impellers	115/60	11,500	115/60
205979	Multi-Mixer Model 9B with 9B29X impellers	230/50	11,000	230/50
205967	Stainless Steel Mixer Cup			

Hamilton Beach® Mixers

Drilling fluid formulations are commonly mixed with various shearing devices which may be either fixed speed or variable speed. The motors may turn mixing shafts with rounded "propellers," sharp blades, wave-form shapes, or others. Single shaft or multiple shaft devices are used. Some examples of the more widely used mixer types are: Hamilton Beach®mixer, Dispersator® high shear mixer, Waring Blendor® mixer, Multi-Mixer® Model 9B mixer with 9B29X impeller, Silverson® Model 14LR mixer.

Hamilton Beach
Model HMD400

Hamilton Beach
Model HMD200

Part No.	Description	Spindles	Volts/Hz	No. of Speeds & RPM	
205971	Hamilton Beach Model HMD400	3	115/60	3	10,000 -14,000 & 17,000
205970	Hamilton Beach Model HMD400	3	230/50	3	10,000 -14,000 & 17,000
205966	Hamilton Beach Model HMD200	1	115/60	3	10,000 -14,000 & 17,000
205974	Hamilton Beach Model HMD200	1	230/50	3	10,000 -14,000 & 17,000

Laboratory Mixer

Fann Laboratory Mixers are two speed mixers, available in both 115 and 230 volt models. No load test speeds of 11,000 and 15,000 rpm. Supplied with the standard impeller blade for mixing either water-base or oil-base drilling fluids. Powerstat® variable transformers (sold separately) are used to provide an extended mixing speed range.

Laboratory Mixer 115 Volt 60 Hz – Part No. 206562

Laboratory Mixer 230 Volt 60 Hz – Part No. 208760

Power-stat 115 Volt – Part No. 206536

Power-stat 230 Volt – Part No. 208772

Laboratory Mixer (shown with optional Powerstat® variable transformer)

Shearing devices vary widely in the amount of shear they impart. Longer shearing times may be required for low shear devices to achieve complete dissolution/hydration of fluid components; while high shear devices may produce nearly completely yielded drilling fluid blends in a few minutes. Aging of drilling fluid samples tends to minimize differences in properties which can result from shearing treatment.

Field Portable Mixer

The Field Portable Mixer is designed for use with field test kits. Speed is 15,000 rpm. It features a spring clip and mud shield for direct attachment to the No. 202 High-Impact Plastic Measuring Cup. This unique mixer is available in either 115Volt AC or 12 Volt DC.

Field Portable Mixer with Cup 115 VAC – Part No. 205986

Field Portable Mixer with Cup 12 VDC – Part No. 206016

No. 202 High-Impact Plastic Cup – Part No. 206889

High Shear Mixer with Patented Mixing Head

Dispersator

The Fann High Shear Mixer (Dispersator) utilizes a patented mixing head that pumps material into the hollow mixing chamber and outward through the chamber openings. The mixing head's blades are designed to draft material from above and below the mixing head and pull it into the chamber. The suction of the blades and flow through the chamber provide a more homogeneous material mix compared to other mixers which rely exclusively on centrifugal force. This mixer achieves a higher shear in less time and maintains a homogeneous material mix without shear degradation. The mixing head is easily disassembled, for cleaning. The high speed mixing head and shaft are replaceable.

High Shear Mixer with Stainless Steel Stand, 115 Volt, AC/DC, 10,000 rpm, 1hp

Capacity – 30 gallons, material weight of 18 lb/gallon

Powerstat® variable transformer (sold separately) is used to provide a variable mixing speed range.

Order No. 206008 High Shear Mixer

Order No. 206536 Powerstat® variable transformer 115 Volt

Fann has a complete line of equipment for Mixing and Shearing of drilling fluids samples in accordance with **API Recommended Procedures**

Fann also offers Waring® Blenders & Magnetic Stirrers including Battery Operated Field Portable Magnetic Stirrers

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